

Amendment B
Application. No. 10/624,229
Page 9 of 14

REMARKS/ARGUMENTS

Claims 1-27 remain pending in the application. Claims 1, 2, 10, 13, and 19 have been amended. Support for the amendments to claims 1, 10, 13, and 19 may be found at least at Example 1 of the application as originally filed. The amendment to claim 2 is to correct a minor informality. Reconsideration of the pending claims in view of the amendments above and remarks below is respectfully requested.

Allowable Subject Matter

At the outset, Applicants note with appreciation the Examiner's indication that claims 4, 8, 10-18, 21-27 would be allowed if rewritten to overcome the rejections under 35 USC 112, second paragraph.¹ However, Applicants note that there is some discrepancy with regard to claim 25 because the Examiner has indicated that it is allowable at page 4 of the Office Action mailed October 3, 2005 and also rejected claim 25 according to 35 USC 102(b) on page 2 of the same Office Action.

Turning to the specific objections and rejections:

Claim Rejection - 35 U.S.C. § 112, Second Paragraph

1. Claims 1-27 stand rejected under 35 USC 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicants regard as the invention.

Applicants note that the Examiner has specifically

¹ See page 3 and 4 of the OA mailed 10/3/2005

Amendment B
Application. No. 10/624,229
Page 10 of 14

rejected claims 1-27 as being indefinite for failing to recite "types of solute or types of fluid" and "filtering parameters such as pressure, temperature, filter pore size, etc."²

Applicants note that the method and apparatus claimed in the present application may be applied to numerous types of solutes and fluids under varying conditions. The claims are limited, however, by specifying that a solute corresponding to the template molecule is more effectively removed by a molecularly imprinted gel coating than by a gel coating that has not been molecularly imprinted.

To address the Examiner's rejection, Applicants have amended independent claims 1, 10, 13, and 19 to specifically recite that "the solute" corresponds to "the template molecule" and that filtration conditions with a molecularly imprinted gel coating are similar to filtration conditions with a gel coating that has not been molecularly imprinted. Therefore, Applicants have specified what solute is to be removed and the parameters under which the solute is to be removed. As such, Applicants respectfully request that the Examiner withdraw the rejection under 35 USC 112, paragraph 2 from each of claims 1-27.

Claim Rejections - 35 U.S.C. § 102(b)

Claims 1-3, 5-7, 9, 19 and 25 are rejected under 35 U.S.C. § 102(b) as being anticipated by US Patent Publication No. 2004/0173506 of Doktycz et al. (herein "Doktycz").

The Examiner asserts that Doktycz discloses fibers which are "molecularly specialized, i.e. imprinted for the sorption, removal and/or sensing of specific biological substances on a

² See page 2 of the OA mailed 10/2/2005

Amendment B
Application. No. 10/624,229
Page 11 of 14

molecular scale" as shown at paragraphs 6, 7, 18, 19, 48, 100, and 101.³ Applicants disagree. The examiner has improperly equivocated "molecularly specialized" to "molecularly imprinted".⁴ Neither the paragraphs referenced by the examiner, nor the reference in its entirety, disclose molecularly imprinted fibers.

As described in the present application, a gel coating is molecularly imprinted and applied to fibrous support material.⁵ As specified by the present application, the process of molecularly imprinting the gel coating involves mixing a sol-gel precursor with template molecules, aging the mixture, and removing the template molecules, thereby, creating a molecular imprint of the template molecules in the resultant gel coating.⁶ The molecular imprint is a "three-dimensional modified crystalline matrix structure" specific to the template molecules.⁷ As such, the imprinted gel can advantageously "distinguish between a targeted solute and close chemical analog thereof with excellent selectivity."⁸

The filter material of the present application, therefore, literally has an imprint or "footprint" of the particular molecular which is desired to be removed. This, as noted, provides excellent selectivity to the present method.

Alternatively, Doktycz discloses a membrane for controlled transport of molecules based on the physical size and/or charge on the molecule.⁹ Doktycz achieves such filtration by controlling the physical separation of the

³ See page 2 of the OA mailed 10/3/2005

⁴ See page 2 of the OA mailed 10/3/2005

⁵ See the present application at page 7, lines 22-24

⁶ See the present application at page 15, line 26 through page 16, line 22

⁷ See the present application at page 16, lines 11-13

⁸ See the present application at page 8, lines 27-28

⁹ See Doktycz at page 1, paragraph 4

Amendment B
Application. No. 10/624,229
Page 12 of 14

fibers and potential gradients on either side of the membrane.¹⁰ Nowhere does Doktycz disclose controlled transport of molecules based on the three-dimensional structure of molecules. Nowhere does Doktycz disclose molecularly imprinting a fiber for a specific molecule. Controlled transport across Doktycz's membrane is limited by the size and charge parameters of the molecule.

The Examiner improperly asserts that "molecularly specialized" and "molecularly imprinted" are equivalent. "Molecularly imprinted" as described in the present application refers to a particular crystalline matrix structure which the gel coating adopts when it has been processed by mixing the sol-gel precursor with template molecules, aging the mixture, and removing the template molecules as previously described.¹¹ Thus, molecular imprinting is a particular way of modifying the molecular structure of the gel coating. The phrase "molecularly specializing" does not set forth a particular way which a fiber has been modified; it simply indicates that the fiber has, in some way, been modified. In any case, to the extent that Doktycz has modified fibers, the fibers of Doktycz are not modified by imprinting as claimed in the present application (as discussed hereinabove). Doktycz simply modifies the orientation of the fibers to control the porosity of the filter and coats the fibers with an "electro-generated polymeric coating."¹²

Therefore, the membrane of Doktycz is significantly different than the apparatus and method described in the

¹⁰ See Doktycz at page 1, paragraph 4

¹¹ See the present application at page 15, line 26 through page 16, line 22

¹² See Doktycz at page 5, paragraph 48

Amendment B
Application. No. 10/624,229
Page 13 of 14

present application. Doktycz does not anticipate nor render obvious an "inorganic gel coating...molecularly imprinted for the solute" claimed in independent claims 1 and 19 of the present application. Because Doktycz does not teach each and every limitation of the pending claims, the present rejection according to 35 USC 102(b) is improper. As such, Applicants respectfully request that the Examiner withdraw the present rejection to independent claims 1 and 19. Because claims 2, 3, 5-7, 9, and 25 depend on claims 1 and 19, it is respectfully requested that the rejection be withdrawn from each of claims 1-3, 5-7, 9, 19, and 25.

Amendment B
Application. No. 10/624,229
Page 14 of 14

CONCLUSION

By way of the remarks provided herein Applicants have made a diligent effort to place the claims in condition for allowance. However, should there remain any outstanding issues that require adverse action, it is respectfully requested that the Examiner telephone Richard Kaba at (312)577-7000 so that such issues may be resolved as expeditiously as possible.

The Commissioner is hereby authorized to charge any additional fees which may be required by Applicants to Deposit Account No. 06-1135.

Respectfully submitted,

FITCH, EVEN, TABIN & FLANNERY



Julie A. Hopper
Reg. No. 50,869

Address all correspondence to:
FITCH, EVEN, TABIN & FLANNERY
Suite 1600 - 120 South LaSalle Street
Chicago, IL 60603-3406

Direct telephone inquiries to:
Richard A. Kaba
312-577-7000